

ON *ATÆNIUS STRIGATUS* SAY AND ALLIED SPECIES (COLEOPTERA)

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The satisfactory identification of Say's *Atænius strigatus* and its separation from the allied *cognatus* Lec. and the hitherto supposedly allied *stercorator* Fab. by means of Horn's Monograph (Trans. Am. Ent. Soc. 1887) has always proved to the writer a puzzling problem. If one is content to simply follow the tabular characters it is usually possible to assign what one has in hand to one or another of the above names, but a critical inspection of the resulting aggregates is disconcerting.

In attacking the problem in my own collection it has become evident that one basic source of misapprehension lies in Horn's characterization of *strigatus* under caption "16" of his key, where he says—"Clypeus finely punctured without traces of rugæ." Horn justifies this statement by the following quotation from Say's description—"Clypeus with very minute punctures and larger ones at the base," and then remarks that had there been any clypeal rugæ Say would have mentioned them. The inference is a fair one and Say may really have drawn his description from specimens without perceptible clypeal rugæ, for there are such examples although they seem to be comparatively rare. In the vast majority of individuals these transverse wrinkles are more or less evident, and a good series of specimens, apparently otherwise specifically identical, will show a complete gradation in this respect between the extremes.

In this connection it should not fail to be noted that Say expressly states that his insect is the "*Scarabæus strigatus* Knoch of the Melsheimer Catalog." It is impossible to believe that he was not appreciative of the significance of the specific name which he accepted, and which could hardly have been suggested by anything else than this same clypeal strigosity. Furthermore Say says that the species is rather common, occurring in Penn-

sylvania and as far west as the Rocky Mountains. So far as I know there are only two species of this group of *Atænius* occurring at all commonly in the Northeastern States, in one of which the clypeal rugæ are in my experience always present though sometimes very faint, and in the other usually evident though occasionally they so nearly disappear as to easily escape observation. One of these two closely allied forms, which I believe are specifically distinct, must be Say's *strigatus*, but since the clypeal rugosity exhibits practically the same range of variation in each of them, the character given by Horn in caption "16" is not distinctive.

A second cause of confusion is the presence in our collections of several as yet undifferentiated but distinct species including one of the two forms just mentioned. Just how many of these undescribed species there are within our faunal limits would require a protracted investigation with very extensive material to determine, a work which I am unable at this time to undertake. I give below, however, as a preliminary study the results of my investigation of the material accessible to me in the small group of species allied to *strigatus* (*inquietus* to *californicus* inclusive of Horn's Monograph) which is admittedly the most difficult in the genus taxinomically speaking.

Types of the species described as new are in the writer's collection.

The group characters of the species here treated, and a table to assist in their separation follow.

Clypeus feebly emarginate, the angles each side broadly rounded; middle and hind tibiæ with accessory spinule; base of thorax broadly arcuate; elytra not pubescent, the discal interspaces at least finely sparsely punctate; hind femora nearly smooth.

A₁. Accessory spinule of middle and hind tibiæ closely adjacent to the shorter spur without intervening spinule of the terminal fringe.

Ventral segments finely sparsely punctate almost throughout, the punctures at the extreme sides only slightly coarser.....*erratus*

Ventral segments coarsely punctate from side to side.....*inquisitus*

A₂. Accessory tibial spinule more removed from the spurs, one of the spinules of the terminal fringe intervening.

B₁. Ventral segments coarsely punctate from side to side; elytral intervals with much coarser punctures at sides and apex than at middle of disk.....*floridanus*

B₂. Ventral segments evidently much more finely punctate or nearly smooth medially.

C₁. Posterior femur with distinct impressed marginal line or groove extending from knee $\frac{2}{3}$ or more of the distance to the trochanter.

D₁. Elytra relatively short and convex, $\frac{1}{3}$ longer than wide, sides distinctly arcuate (suboval), sides of thorax straight and parallel, size small (3.5-3.9 mm.).....*brevis*

D₂. Elytra more oblong and elongate, $\frac{1}{2}$ or more longer than wide, sides of thorax broadly arcuate.

E₁. Mesosternum with a rather long and distinct though obtuse shining carina between the coxae.

Coarse punctures of prothorax nearly or quite wanting antero-medially, the fine punctures unusually dense in this area.....*saluator*

Coarse punctures of prothorax generally distributed, becoming a little larger and closer laterally*ludovicianus*

E₂. Mesosternum scarcely or indistinctly carinate, or at most with only a short incipient carina.

F₁. Coarse punctures of prothorax generally distributed, usually conspicuously numerous or even dense laterally, thorax often feebly narrowed behind, metasternum of male (except in *anticus*) with interspersed larger punctures bearing very short setæ, in addition to the very fine apparently nonsetigerous punctures which alone are present in the female.

Size larger, usually about 4.5 mm., interstitial punctures of elytra very fine, ædagus of male curved downward at apex when viewed in profile.....*strigatus*

Size smaller (length scarcely 3.5 mm. in the unique type), form narrower, interstitial punctures of elytra stronger and more evident, ædagus of male nearly straight in profile, the apex not appreciably deflexed*rudellus*

F₂. Coarse punctures of prothorax generally distributed but everywhere rather sparse, not or but little closer laterally; thorax not narrowed behind; ædagus of male arcuate in profile, curved downward at apex, impressed above toward the base.....*consors*

- F₃. Coarse punctures of thorax almost or quite lacking in an antero-median area of considerable size; metasternum similarly minutely punctate in both sexes; œdagus of male dilated apically, the tip not curved downward; size rather small (3.6-4 mm.) *anticus*
- C₂. Posterior femur without or with only a short feeble marginal line near the knee.
 Ventral segments evidently punctate at middle; size larger as a rule. (Texas; New Mexico.) *cognatus*
 Ventral segments nearly smooth at middle, the coarser punctures of the prothorax relatively larger; size a little smaller *californicus*

Atænius erratus new species.

Elongate oblong, black, shining, the elytra very finely but perceptibly alutaceous in the female, scarcely detectably so in the male.

Head finely sparsely punctulate with slightly coarser punctures at base, and with fine transverse rugulosity in front which varies from fairly distinct to almost wanting; clypeus at middle broadly sinuate with rounded angles.

Prothorax rather strongly transverse, shorter than usual as compared with the length of the elytra, sides subparallel and broadly arcuate; surface strongly shining with the usual dual punctuation, the minute punctures very sparse, the coarser punctures numerous and rather evenly distributed, being only a little coarser laterally and slightly finer and sparser antero-medially.

Elytra elongate, parallel, slightly wider than the thorax; striæ fine, scarcely visibly punctulate at bottom, the punctures along the inner margins of the intervals unusually fine; intervals feebly convex and minutely punctate.

Mesosternum not distinctly carinate between the coxæ; ventral segments finely sparsely punctured almost throughout, the punctures at sides not coarser except slightly so at the extreme margins; marginal line of hind femur extending more than half the distance to the trochanter; accessory spinule of the four posterior tibiæ closely adjacent to the spurs without intervening spinule of the terminal fringe.

Length 5-5.25 mm.; width 2.1-2.2 mm.

The type is one of three examples from Enterprise, Florida, submitted by Mr. Liebeck, who writes me that they are like the specimen referred to by Horn following his description of *strigatus* as presumably a male of that species. In this specimen of Horn's, which is from Georgia, the spur of the anterior tibia is as mentioned by him rather strongly incurved at apex, un-

doubtedly a male character. None of the Enterprise specimens show this, and they are by this token all females.

The distinctive characters of this species are the relatively short thorax and long elytra; the unusually fine crenations of the inner margins of the elytral intervals, the fine and nearly uniform punctuation of the ventral segments, and the close propinquity of the accessory tibial spinule to the shorter of the terminal spurs. I have observed this last character only in *inquisitus* among the other species of this group, the accessory spinule in all others being a little removed from the spur with one of the spinules of the terminal fringe intervening.

Atænius inquisitus Horn.

Superficially this species is very similar to most of the others of the *strigatus* group, but aside from having the ventral segments coarsely punctate from side to side, it possesses three other characters of diagnostic value, none of which were recognized as such by Horn. In all the species of the *strigatus* series there is a group of more or less confluent coarse punctures forming a rugose or eroded area of variable extent along the side margins of the metasternum. Within this lateral rugose area the sides of the metasternum bear only a few fine scattered punctures in all the related species, but in *inquisitus* there is an irregular series of coarse punctures extending inward to the central flattened area. The accessory spinule of the middle and hind tibiæ is appreciably more strongly developed than in any other species known to me, and its close contiguity to the tibial spurs is paralleled only in *erratus* as is indicated in the tabular key.

Horn's specimens of *inquisitus* were from Southwestern Texas. Those in my series are from Brownsville and Alpine, Texas.

Atænius floridanus Brown.

Stout, oblong, somewhat strongly convex; black, shining, the elytra with traces of very fine alutaceous sculpture toward sides and apex.

Head distinctly transversely rugulose anteriorly, finely punctate at middle, with a rather wider and distinctly denser belt of coarse punctures at base than in the other species of the group; clypeus sinuato-emarginate with rounded angles.

Prothorax moderately transverse, sides parallel and feebly arcuate, a little more so anteriorly; coarse punctures quite dense laterally, sparser and a little finer medially.

Elytra at base perceptibly narrower than the thorax, at middle very slightly wider than the latter; striæ deep, interspaces flatly convex on the disk, becoming distinctly convex at sides and strongly so at apex; interspaces very finely punctulate as usual at middle of disk, the punctures becoming very much coarser at sides and apex, where on the declivity they form a single series occupying almost the entire width of the summit of the interspace; striæ evidently punctate, inner margins of intervals strongly crenately punctate.

Posterior face of profemur coarsely numerous punctate; mesosternum obtusely carinate between the coxæ; metafemoral marginal line coarse and deep, extending fully two-thirds the distance from knee to trochanter; ventral segments very coarsely and closely punctate from side to side, only a little less coarsely so medially.

Length, 4.5-5 mm.; width, 2.1-2.2 mm.

Florida. This species has been recently described (Can. Ent., Jan., 1930, p. 3) by Mr. W. J. Brown from a single specimen without more precise indication of locality. I have myself seen four examples, three in Mr. Liebeck's collection (Biscayne and Levy Co., Florida), the fourth being the specimen in the LeConte collection referred to by Horn as the only example of *stercorator* known to him from our territory; it bears the label "Sand Point, Fla.," and was collected by Hubbard or Schwarz.

The stout form, coarse punctuation of the elytral intervals at sides and apex, and the very coarse ventral punctuation characterize this species. It is very closely allied to and probably only a geographical variant or race of the Mexican *strigicauda* Bates, a specimen of which from the Biologia material is before me. In the latter the head is as coarsely punctured at sides as at base, the elytral interspaces are perceptibly more convex on the disk, and their inner margins are more coarsely crenate.

Atænius brevis new species.

Rather short oblong-oval, convex, black, shining; integuments polished, the elytra faintly alutaceous only under strong amplification; legs dark rufous.

Head finely but perceptibly wrinkled in front, finely punctate medially, occiput with coarse punctures which are more numerous toward the sides; clypeal margin arcuato-emarginate with rounded angles.

Prothorax two-fifths wider than long, sides viewed from above very nearly straight and parallel; coarser punctures generally distributed, rather densely aggregated laterally, sparser and somewhat finer medially, especially in front.

Elytra one-third longer than wide, sides more evidently arcuate than usual, intervals a little convex with minute scattered punctures.

Mesosternum with a moderately distinct but obtuse intercoxal carina; ventral segments strongly punctured at sides, finely and very sparsely so at middle; posterior (lower) face of profemur strongly punctate; marginal line of posterior femur long, extending from knee three-fifths to trochanter.

Length, 3.5-3.9 mm.; width, 1.6-1.75 mm.

Described from two examples of undetermined sex labelled simply Pennsylvania and collected by Henry Ulke many years ago. The specimens were probably taken in the Blue Ridge Mts., where Ulke had a summer home or camp, in the vicinity of which he did a good deal of collecting. Mr. Liebick writes me that he has seen twelve or fifteen specimens of this species, all collected and distributed by Ulke. There are specimens in the Liebeck and Horn Collections, and the Ulke collection should contain a good series.

***Atænius saluator* new species.**

Of rather large size, oblong, moderately convex, black, shining, integuments not perceptibly alutaceous.

Head distinctly wrinkled in front, finely punctate medially, with sparse somewhat coarser punctures at base; clypeal margin broadly emarginate with rounded angles.

Prothorax moderately transverse, sides parallel and feebly arcuate, slightly narrowed in front in the type; coarser punctures a little larger and more numerous but not dense at sides, somewhat finer on the disk, and almost wholly lacking antero-medially, the fine punctures in this area more numerous and evenly disposed than usual.

Elytra at base as wide as the thorax, sides nearly straight and parallel in about basal three-fifths; striæ deep; intervals naerly flat at middle of disk, becoming gradually more convex toward the sides and apex, finely sparsely punctate and with a row of punctures crenating their inner margins.

Mesosternum with a rather long polished intercoxal carina; ventral segments very finely sparsely punctate in middle third, moderately coarsely so at sides; marginal line of hind femur well impressed and extending from the knee a little more than half way to the trochanter.

Length (type), 5.6 mm.; width, 2.35 mm.

Described from a single example, apparently a female, taken by the writer at Pensacola, Florida, July 8, 1893.

The type agrees very closely with the specimens standing as *stercorator* Fab. in the Horn collection. As I am informed by Mr. Liebeck there are three of these and all without locality labels. There however can be no doubt that they are the Buenos Ayres specimens which Horn says were sent to him as *stercorator* by Candeze, and it is from them that Horn drew his description of this species. As will be explained further on it now turns out that these Buenos Ayres specimens from Candeze are not the true *stercorator* nor have I been able to ascertain whether they actually have a name or not. I have therefore for the sake of completeness thought best to describe the Pensacola species and take the risk of creating a synonym.

***Atænius ludovicianus* new species.**

Of rather large size, moderately robust, oblong, shining, black, legs brownish piceous; elytra very finely alutaceous, the thorax not visibly so.

Head transversely wrinkled anteriorly, finely punctate at middle, more coarsely so at base; clypeus broadly arcuately emarginate with rounded angles.

Prothorax moderately transverse, sides feebly arcuate, and either parallel or slightly convergent behind; coarser punctures of surface everywhere numerous, but a little larger and denser laterally.

Elytra slightly wider at base than the thorax, sides parallel to behind the middle, intervals nearly flat on the disk, interstitial punctures fine and sparse.

Mesosternum with a moderately long intercoxal carina; ventral segments coarsely punctate at sides, very finely and sparsely so medially; marginal line of hind femur rather fine, extending from the knee two-fifths the distance to the trochanter.

Length, 4.3-4.8 mm.; width, 1.9-2.2 mm.

Described from three examples (2 ♂, 1 ♀) collected at Winnfield, Louisiana, by Mr. G. R. Pilate. In the male type the thorax is perceptibly narrowed behind; in the other male there is no posterior narrowing while in the female the form is intermediate between these two. In the male type the metasternum is very finely punctate in front, with distinctly coarser punctures posteriorly; in the female the metasternum is finely punctulate throughout. In both males the inner spur of the anterior tibiæ is distinctly more strongly incurved at tip than in the female.

Atænius strigatus Say.

This species, the first of the genus to be made known from our fauna, was described by Say (as an *Aphodius*) in 1823. He observes that his insect is the *Scarabæus strigatus* Knoch of the Melsheimer Catalog and that it is rather common in Pennsylvania. Since Melsheimer's material was collected for the most part in Pennsylvania it is fair to consider this the type region of the species. As Say did not mention any clypeal rugæ in his description Horn assumed this to be characteristic of the species, and the series in his cabinet was selected on this basis. It happens, however, as I have already pointed out, that there are two species, hitherto confused, occurring more or less commonly in this region, in both of which the clypeal sculpture varies much, occasional examples being found in each with the clypeal rugæ virtually wanting; some other means must therefore be found for their distinction.

In my search for such a means of distinction I have discovered in the punctuation of the rear or lower face of the anterior femur a character which seems to me most nearly to meet this requirement. In one of the two species the femur shows numerous coarse punctures, which in the more extreme forms may become in part rugosely subconfluent; in the other species the profemur is very finely and remotely punctate with at most only very few interspersed coarser punctures. In both species this punctuation varies somewhat individually, but very rarely sufficiently to cause doubt as to which category the given specimen belongs.

In order to determine to which of these two species the *strigatus* of the Horn collection belongs, Mr. Liebeck has sent me examples found by careful comparison to be identical with the specimen on the name label in the Horn cabinet. This specimen and most of the others in the Horn series are from Georgia and prove to be the species with coarsely punctate profemur. Oddly enough there are no specimens from Pennsylvania or any of the adjoining states in the Horn series.

In the Harris collection, now in the possession of the Boston Society of Natural History, Mr. C. W. Johnson, the curator, writes me there are two examples bearing No. 1043 and entered

in red ink in the Harris Note Book as *Aphodius strigatus* Say, with the additional data Milton (Mass.), Sept. 20, '29, and Cambridge, June 1, '32. The red ink entry signifies that the names thus written were sent by Say after examining the collection which Harris sent him in Nov., 1833. Mr. Johnson has kindly sent me one of these two Mass. specimens for inspection; it is the species with finely punctate femur.

Finally an examination of the Melsheimer collection reveals a series of six "Melsh." specimens of *A. strigatus*, five of which have the profemur coarsely punctate. In the sixth the rear surface of the femur is not visible but the general aspect of the specimen is that of the species with finely punctate profemur. This last observation seems to me most significant of all and goes far toward convincing me that the name *strigatus* properly belongs to the species with coarsely punctate profemur, and it is so applied in this paper.

As thus determined *strigatus* is a species of medium size, ranging as a rule between $4\frac{1}{4}$ and $4\frac{3}{4}$ mm. in length. The clypeal rugæ are usually distinct but quite variable in development and now and again are practically obsolete. The coarser punctures of the pronotum are smaller and sparser medially, especially in front, but become as a rule conspicuously closer or even dense laterally, though occasionally they are not very much so. The prothorax is not infrequently feebly narrowed behind but this character is not a constant one; I have observed it most often in examples from the Middle Western States. The punctuation of the ventral segments is as usual rather coarse at sides becoming finer at middle, but the change is here more gradual and the disparity much less marked than in certain other species, notably *salutator*, *ludovicianus* and *californicus*, which are at once separable from the present species on this character alone. The coarse punctures of the posterior face of the profemur have already been mentioned as of especial service in separating this species from the closely allied *consors*, with which from community of habitat it is most likely to be confused.

Horn alludes to a specimen in his *strigatus* series as probably a male, the anterior tibiæ being somewhat more slender and the terminal spur incurved at tip. The apical curvature of the

tibial spur is undoubtedly a male character, but the example alluded to belongs to an entirely distinct species (the *erratus* of the present paper) and not to *strigatus*, in which I have discovered no appreciable sexual difference in the tibial spur. I have, however, noted a hitherto unobserved sexual character which is well marked in the present species and several others. This pertains to the metasternum, which in the female is very finely and sparsely punctulate, but in the male shows a number of coarser punctures bearing very short setæ, which in well-preserved examples are easily visible in profile.

Strigatus is widely dispersed from New England to Georgia and the Mississippi Valley. I possess or have seen specimens from the following states. New Hampshire; Massachusetts; New York; New Jersey; Pennsylvania; Virginia; Georgia; Kentucky; Indiana; Illinois; Iowa; Kansas; and Arkansas.

***Atænius rudellus* new species.**

Rather small and narrow for the present group, the size and form being nearly as in one of the larger examples of *abditus*. Black, legs dark rufopiceous, surface not very strongly shining because of the close punctuation of the thorax and the fine but evident alutaceous sculpture of the elytra. Clypeal margin with the usual sinus and rounded angles; head with feeble traces of transverse rugæ in front, the punctuation of the usual type but distinctly stronger and denser than in *strigatus*.

Prothorax subequal in width to the base of the elytra, sides broadly arcuate and parallel, coarser punctures very numerous and everywhere present, finer and sparser antero-medially, and coarser and denser laterally as usual.

Elytra oblong, sides parallel to behind the middle, sutural length about two-fifths greater than the width; intervals broadly but perceptibly convex on the disk, becoming quite strongly so at apex; interstitial punctures stronger and more distinct than in allied species; mesosternum with a feeble obtuse carina; hind femur with marginal impressed line extending from knee two-fifths to trochanter.

Length, 3.5 mm.; width, 1.6 mm.

St. Petersburg, Florida. A single male taken by the writer April 2, 1922.

In the unique male type the spur of the anterior tibia is rather abruptly bent inwardly at tip; the metasternum is very finely punctate in front with coarser punctures in posterior half; the œdagus is short and obtusely rounded at the apex, which is not

deflexed as viewed from the side; the accessory tibial spinule is very short.

Atænius consors new species. *Atænius consors* sp. nov.

Of medium size, oblong oval, moderately convex, black, shining, integuments not distinctly alutaceous under the usual amplification.

Head with fine transverse wrinkles anteriorly which vary from barely perceptible to well defined; vertex finely sparsely punctate, with coarser punctures at base; clypeus with the usual sinuate emargination with rounded angles.

Prothorax moderately transverse, sides parallel and usually broadly arcuate, but becoming nearly straight in some examples; coarser punctures comparatively sparse, much less numerous than in *strigatus*, generally but unevenly dispersed, not much sparser or larger laterally than at middle, except anteriorly, where as usual they are fewer and smaller.

Elytra at base as wide as the thorax, sides parallel and nearly straight in basal half; intervals very feebly convex on the disk; interstitial punctures sparse and minute.

Profemur finely sparsely punctate on its posterior face; marginal line of hind femur deep, extending half way or more from the knee to the trochanter; ventral segments finely sparsely punctate medially, more coarsely so at sides.

Length, 4–4.8 mm (head deflexed); width, 1.8–2 mm. One very large example with head extended measures 5.5×2.35 mm.

The following localities are represented in my collection or are known to me. Massachusetts (Lawrence, Milton, Cambridge); New York (Peekskill); New Jersey; Pennsylvania (Mt. Airy, Moore's, Bucks Co.); District of Columbia; North Carolina (Highlands); Florida (Biscayne, Paradise Key); Tennessee (Madison); Missouri (St. Louis); Arkansas (Hope); Louisiana (Winnfield, New Orleans); Kansas (Lawrence, Argentine); New Mexico (Elba).

The type is a male from Lawrence, Mass., bearing date of 30 Aug., 1920, and collected by Miss Edith W. Mank.

I do not detect any appreciable sexual difference in the spurs of the protibiæ, but here as in *strigatus* the males are easily recognized by the presence of the coarser setiferous punctures of the metasternum, the metasternal punctures in the female being very fine and non-setiferous.

As will be seen from a glance at the localities given, this species and *strigatus* range over pretty much the same territory.

As compared with *strigatus*, *consors* is on the average a little larger and more robust; the coarse punctures of the pronotum are very much fewer, though owing to some individual variation the disparity is not equally marked in all specimens; the posterior face of the profemur is much less punctate; the œdagus while of nearly similar form, is so far as examined a little different in outline, notably because of a well-marked depression above near the base, which is nearly or quite wanting in *strigatus*. In *strigatus* the prothorax is not rarely a little narrowed posteriorly, not so in any examples of *consors* thus far examined. The clypeal rugosity shows a nearly similar amount of variation in both species.

***Atænius anticus* new species.**

A little smaller and narrower than *strigatus*, and very markedly so as compared with *consors*. Black, femora piceous, tibiæ and tarsi brownish; integuments strongly shining, not perceptibly alutaceous.

Head in anterior half or more conspicuously transversely wrinkled, vertex finely sparsely punctate, at base with very few punctures which are nearly or quite as fine as those of the vertex; clypeus broadly emarginate with rounded angles.

Prothorax a little less transverse than in *strigatus*, not narrowed behind, sides parallel and broadly feebly arcuate; pronotum with the usual dual punctuation, the coarser punctures nowhere dense and almost or quite wanting in an antero-median area which usually reaches half way to base on the disk and involves the middle half of the apex; in this area the fine punctures are evenly distributed.

Elytra at base subequal in width to the thorax, fully to rather more than one-half longer than wide (about two-fifths longer than wide in *strigatus* and *consors*); intervals nearly flat on the disk, with the usual fine interstitial punctures.

Mesosternum not distinctly carinate; marginal line of hind femur feeble but visible, reaching from the knee about one-third distance to the trochanter; ventral segments more finely punctate at middle.

Length, 3.6–4 mm.; width 1.4–1.75 mm.

I have received a good series of this species from Hope, Arkansas, where it was taken abundantly at light by Miss Louise Knobel. I have seen it also from Hot Springs, Ark., Winnfield, La., Dunedin and Enterprise, Fla., and Tybee Isl., Georgia. The type is a male from the first named locality.

Unlike *strigatus* and *consors* males of this species are not distinguishable by the metasternal punctuation, this being similarly

fine and sparse in both sexes. The form of the male genital organ differs from that in all other species examined in being distinctly dilated apically, the tip not deflexed. Briefly stated the characteristic features of this species are the rather small and narrow form, the head conspicuously wrinkled anteriorly and at base with fine sparse punctures instead of the usual coarser ones, the absence or near absence of coarser punctures in a rather large antero-median pronotal area, metasternal area similarly finely punctate in the sexes, marginal line of hind femur weak, œdagus dilated apically.

Atænius cognatus Lec.

So far as I have yet discovered there is only one obvious external character by which this species may be separated from *consors*, viz.—marginal impressed line of the hind femur very short and feeble or altogether wanting, as given in couplet "18" of Horn's table. There is contributory evidence of the distinctness of the two species in the fact that in the single male *cognatus* which I have been able to dissect the genital organ is somewhat different from that in *consors*, and that of the dozen examples of *cognatus* seen all are from Texas or Sonora (2 exs. in the LeConte type series), while no specimens of *consors* have as yet been recognized from Texas, although from its occurrence in neighboring states it may fairly be expected to be found there.

Horn's description of *cognatus* is sufficiently accurate and need not be repeated. The head is distinctly wrinkled in front; the coarser punctures of the pronotum are as in *consors* scattered over the whole surface, and while usually a little closer and coarser laterally, seem not to be densely aggregated at sides as they frequently are in *strigatus*. Horn describes the metasternum as having a few coarse punctures at middle. He was unaware that this is a male character, the female having the same area sparsely very finely punctured. Horn's statement that this species "occurs from the New England States to the Rocky Mts., Texas and Sonora" is due to a confusion of species.

LeConte's original series of *cognatus* consists of four specimens said to have been collected by Haldeman and Webb in Texas and Sonora. Two of the specimens, including the one on

the label are pinned and two are mounted on points, the difference in mounting probably indicating the two sources of supply. The pinned specimens I believe to have been collected by Haldeman in Southern Texas, and the one on the name label must be considered the type. The other pinned specimen has a long metafemoral line and is probably a different species. The two specimens on points are I believe the Sonora ones collected by Webb, and are possibly a third species, but as they agree with the type in the absence of a femoral line they may stand as *cognatus* for the present.

Specimens of this species are known to me from Brownsville, San Antonio and Amarillo, Texas, while others bear simply the label "Tex." An example in my own collection from Roswell, New Mexico, and a similar one in Mr. Liebeck's collection from Organ Mts., N. Mex., lack the femoral line but the ventral punctuation is nearly as coarse at middle as at sides, and they may represent a distinct species.

***Atænius californicus* Horn.**

The tabular characters combined with the locality label should suffice for the separation of this species from all others now known to us. Horn described it from San Bernardino. I have it from along the Colorado River at Yuma and East Bridge and also from Indio in the Colorado Desert.

***Atænius stercorator* Fab.**

Following his line or two of description of this species Fabricius remarks "Habitat in America meridionali." In 1848 Haldeman doubtfully referred one of our insects to Fabricius' species, and for more than eighty years *stercorator* has been accredited to our fauna.

In his Synopsis of the Aphodiini of the United States (Trans. Am. Ent. Soc., 1871) Horn wrote that he had received from Candèze typical examples of *stercorator* from the Pampas of Buenos Ayres, and decided that they were the same as the *strigatus* of Say. In his later paper of 1887 Horn declares his previous decision to have been in error and adds that "Among the numerous specimens of the group which are usually aggre-

gated as *stercorator* in collections, I have seen but one specimen in the cabinet of Dr. LeConte which can be considered a true *stercorator*.”

In the meantime (1886) and probably not yet seen by Horn at the time of writing Bates points out in the *Biologia* that the original type of *stercorator* is in the British Museum collection in a good state of preservation, and is a wholly different thing from the *stercorator* of von Harold, which latter Bates proceeds to describe under the name *strigicauda*. Through the kindness of Mr. Arrow I have been privileged to examine an example of *stercorator* from the same locality as Fabricius' type (Rio Janeiro) and said by Mr. Arrow to be in every way identical with the latter, also an example of *strigicauda* from the *Biologia* material. I can now positively assert that we have nothing in our fauna at all like the true *stercorator*, and furthermore that the specimen in the LeConte cabinet so referred by Horn is very close indeed to the specimen of *strigicauda* sent me by Mr. Arrow and is not the same thing as the Buenos Ayres species from Candeze in the Horn collection. As to this latter see my description of *A. saluator* n. sp. on a preceding page. The LeConte specimen above referred to is the same as *A. floridanus* Brown.

The true *stercorator* turns out to be a robust species of dull surface lustre, the head and thorax densely coarsely punctate, the latter without the interspersed fine punctules common to all our species of the *strigatus* group; the elytra alutaceous and not at all shining, striæ distinctly punctate, the intervals not appreciably crenate along their inner edges; middle and hind tibiae with a row of obtuse tubercles along the inner edge. Mr. Arrow writes that he believes these tubercles to be a male character and that his *A. tenebrosus* which lacks them is probably only the female of *stercorator*. The four posterior tibiae lack the accessory spinule, which fact excludes *stercorator* from the *strigatus* group.